177581

PR & ASSOCIATES

19920 Foxwood Forest
Suite 405
Humble, Texas 77338
(713) 446-0553
Fax (713) 875-2990

April 20, 1992

Mr. Brad Bradley, Project Mgr.
US EPA (5H5RL-6J)
77 W. Jackson St.
Chicago, IL 60604

Dear Brad:

Thank you for listening to me the other day. As promised, enclosed is a Statement of Qualification from Solids Management Inc. for their solids stabilization & oxidation systems which should have some interest to you. In addition, I have enclosed some material including a picture of the operating system and supporting material from Drilex, a major horizontal well driller in the U.S.

Should you have any questions or comments please call me at (713) 446-0553 at your convenience. Thanks again.

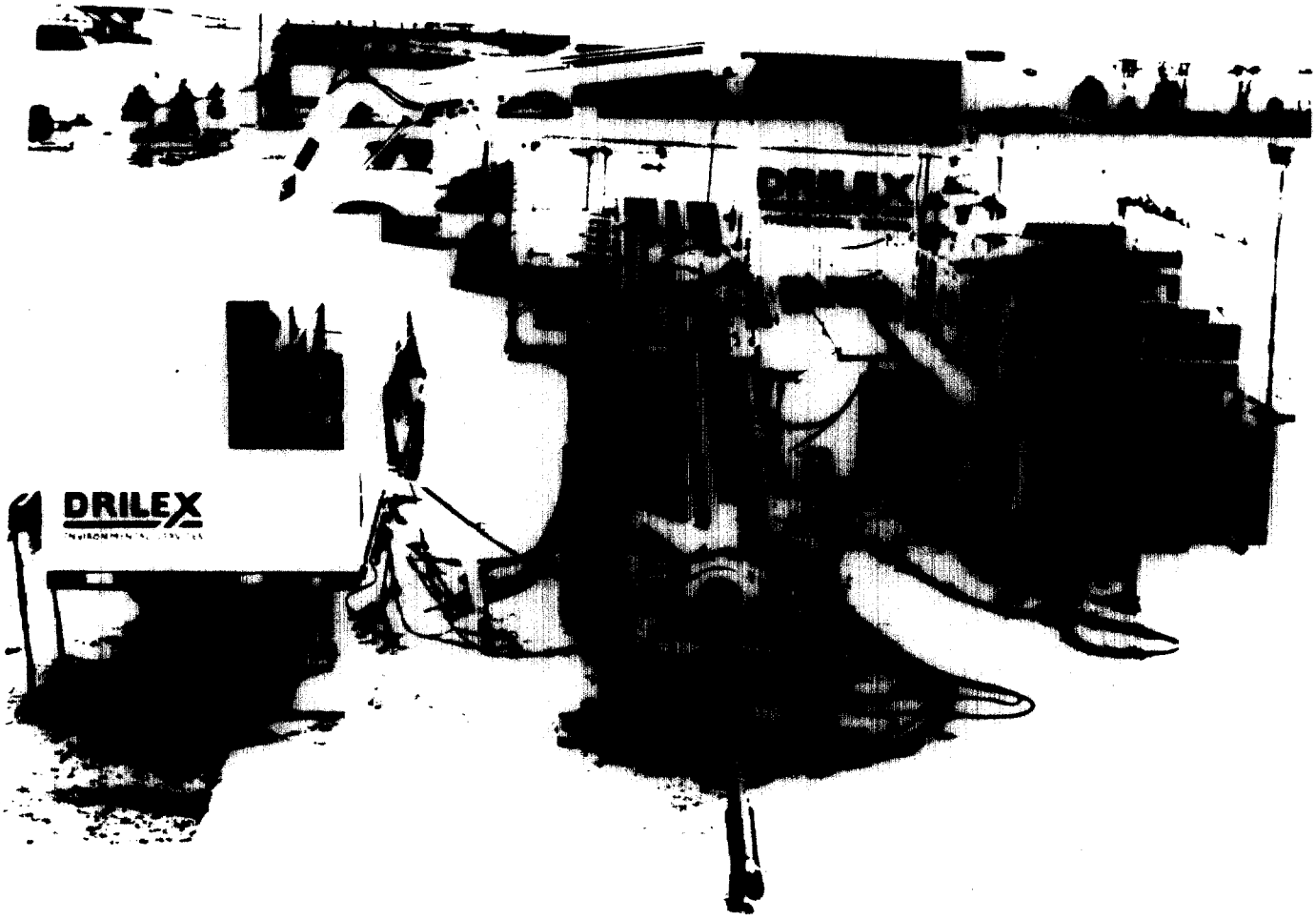
Sincerely,

PR & Associates

Jack Rademacher

J. M. Rademacher, PE, DEE

cc - D. Listiak, SMI
W. Bailey, Drilex


DRILEX

DRILEX

DRILEX HORIZONTAL DRILLING SYSTEM

Major System Components:

- Experienced drilling crew to place horizontal wellbores
- Custom-built slant drilling rig
- Well-planning services
- Total well engineering

Drilling System Mounted on Four (4) Truck Trailers (non-permit loads):

- Rig unit
- Drilling fluids circulation unit
- Pipe/Driller's Control unit
- Generator unit

Drilling System Capabilities:

- Horizontal section (TVD): 20 ft to 100 ft
- Horizontal length: 1,500 ft
- Horizontal placement accuracy:
  True vertical depth of ± 2 ft
  Azimuth of ± 2 degrees
- Borehole Entry Angle Adjusts from 10-Degrees to 25-Degrees Above Horizontal in 1-Degree Increments.
- Pollution Pans Installed Under All Rig Components.
- Self-contained mud system (no earthen mud pits).
- All Drilling Crews and Supervisors Are 40-hr OSHA-Certified.

DRILEX

DRILLING RIG SPECIFICATIONS

Totally self-sufficient drilling system
requires no external electrical power

Mast: Hydraulics Hoist		
Push-pull capacity	140,000	lbs
Stroke length	34	ft
Carriage speed	0-110	ft/min
Rotary Top-Drive System		
Speed	0-100	rpm
Torque	24,000	ft-lbs
Drilling Fluid System		
System capacity	120	bbl

Triplex pump:
- Ellis Williams 446, 400 gpm with 6-in. liners
- Powered by Caterpillar 3306 TA/300 hp diesel engine

Closed-loop drilling fluids circulation system w/solids removal equipment.
(No earthen pits required)

Pipe-Handling System	
Hydraulic crane	3 tons @ $7^1/_2$ ft radius
Integral make-up/breakout wrenches	2 - 12 in. OD
Casing handling OD for crossings	4 - 24 in.
Casing handling OD for environmental appl.	4 - 12 in.
Drill pipe OD	$2^7/_8$ - $5^1/_2$ in.
Utility crossing length capability	0 - 2,500 ft
Horizontal reach for environmental appl.	0 - 1,500 ft

Rig Power System		
Generator capacity	175	Kw

All engines equipped with residential mufflers
Hydraulics powered by Caterpillar 3306 T/250 hp diesel engine

Miscellaneous Equipment
- Electrical welding machine
- Oxygen/acetylene equipment
- 20 hp air compressor

Rig Location Size minimum 50 ft x 100 ft

DRILEX

APPLICATIONS FOR TRENCHLESS CROSSINGS

Under highways, railways, runways, rivers, creeks and other surface obstructions.

- Fiber-optic/utility installations.
- Pipeline installations.

ADVANTAGES OF TRENCHLESS CROSSINGS

- Environmental destruction minimized, thus reducing long-term maintenance.
- Vegetation left intact, preventing erosion and stream course changes.
- Small rig set-up site and access route leaves surrounding ecosystem virtually undisturbed.
- Accurate placement of wellbore.
- No disruption to existing utility system.
- Rapid installation.
- More cost-effective.

DRILEX

ENVIRONMENTAL APPLICATIONS FOR HORIZONTAL DRILLING SYSTEM

- Contaminated groundwater recovery.
- Pump and treat.
- In-situ remediation:
  - Biotechnology
  - Chemical treatment
  - Soil vapor extraction
  - Vitrification
  - Steam injection
  - Solubilization
- Contaminant transport barrier.
- Contaminant pressure curtain or floor.
- Sampling conduit for soil, soil gas, leachate and groundwater beneath lagoons, tanks, buildings or landfills.

HORIZONTAL WELLBORE ADVANTAGES

- Considerably more efficient extraction hydraulics for faster cleanups.
- Fewer wells necessary, as one horizontal well often can replace numerous vertical wells.
- Minimum number of entries to aquifer.
- Minimal disruption to daily site operation.
- Ability to reach areas otherwise inaccessible.

SOLIDS MANAGEMENT INCORPORATED

17625 El Camino Real • Suite 310 • Houston, TX 77058

Facsimile (713) 480-9256 • Telephone (713) 480-8934

Statement of Qualifications

Presented by:

Statement of Qualifications

Solids Management Incorporated (SMI) was established in 1990 with the goal of being the premier waste remediation company in the United States. SMI's unique approaches to remediation through the application of several technologies has positioned it well for attainment of its goal.

Technologies

SMI utilizes several technologies which can be brought to bear on a particular remediation problem:

Solids Complexing and Modified Oxidation
Solids Washing for Metals
Solids Washing for Organics

These technologies may be combined to address multiple contaminants in the solids. The reagents used in each technology are carefully chosen by our full service, state-of-the-art analytical laboratory to effect the remediation objective and to minimize remediation costs.

Samples of the solids to be remediated are subjected to bench scale remediation feasibility studies with the treated samples being analyzed by United States Environmental Protection Agency (USEPA) methods, and/or other criteria as may be required by local regulatory authorities, to produce replicable results before a technology or combination of technologies are recommended to for a project.

Unique remediation problems often materialize requiring equally unique approaches. With its experience to call on, SMI has the ability and resources required to custom design a remediation system for these unique circumstances.

Hardware

SMI utilizes a wide variety of equipment in the application of its technologies. From a simple arrangement of tanks, pumps and dewatering equipment for solids washing to custom designed units for solids complexing and modified oxidation, each system is designed to produce a final product which meets or exceeds the environmental criteria applicable for the client's project.

Production rates from as low as 20 cubic yards per hour to as high as 250 cubic yards per hour are easily attainable, making projects both large and small short in duration. For extremely large projects, multiple treatment units are available to greatly expand daily production. For unique applications for which standard equipment is not applicable, SMI will design and build equipment to meet the client's treatment needs.

Personnel

All personnel associated with a remediation project are full-time employees of SMI. Our skilled professionals receive extensive and continuous training in health and safety matters, equipment operation, and hazardous waste site operations. Additionally, SMI has an extensive personal medical monitoring program it conducts on all operations personnel from management through technicians.

SMI's project management team keeps the client informed of the progress of

a project with daily reports as well as a comprehensive final report that summarizes all data collected during the remediation. Our on-site management personnel are experienced and skilled in handling all problems which arise, and have the authority to make necessary changes to the operation as required for safety, health and environmental control.

Quality Assurance/Quality Control

SMI employs a stringent quality assurance/quality control (QA/QC) program on each project. QA/QC programs, though standardized, are customized for each project to ensure that all applicable environmental and client criteria are met or exceeded.

Summary

SMI's success has grown rapidly. We enjoy an excellent reputation with our clients who appreciate our professional approach, cost effective technologies, and expertise in meeting their environmental compliance goals.

Call Solids Management Incorporated today and let us illustrate our capabilities in remediating your site's contamination of volatiles, semi-volatiles, metals, herbicides, pesticides, PCBs, etc..

References furnished on request.

Project Summary

California Project

A major California land developer purchased a piece of prime property to develop a shopping center. Plans for the parking lot included the laying of an underground storm water drainage system. During excavation for the concrete pipe the backhoe operator encountered a buried steel vent pipe. Further digging and investigation revealed several leaking underground storage tanks (LUSTs) and a sludge-filled concrete clarifier from an abandoned car wash. The developer had the LUSTs excavated and removed which resulted in approximately 8,700 tons (6,700 cubic yards) of petroleum hydrocarbon and lead contaminated soil to be handled.

Solids Management Incorporated was contacted to provide a cost effective and environmentally sound alternative to transportation and disposal of the soil which ranged in contamination from 500 ppm to 18,700 ppm TPH, 75 ppm to 1,840 ppm combined BTEX levels, and 750 ppm lead.

Solids Management Incorporated was awarded the contract based on our Solids Complexing and Modified Oxidation System. Screened, contaminated soil was admixed with 0.7% MP-5050™ (a proprietary reagent compound manufactured by Molecular Products, Inc.) and 15% water utilizing SMI's SPS-150T Solids Processing System. All soil treated with the SMI process were certified by regulators to remain on-site for unrestricted use.

The project, valued at $260,000.00, was completed in 89 working hours (11 working days).

Project Summary

Canadian Project

An engineering firm, working with a multi-national real estate developer purchased a 25.2 acre tract on which to build a large office and entertainment complex, found extremely high levels of lead contamination (25,800 - 87,200 ppm) during their site assessment investigation. Due to the closing of the local hazardous waste landfill, Solids Management Incorporated was contacted to provide a remediation approach to 137,000 cubic yards of contaminated solids.

Solids Management Incorporated was awarded the contract based on the fact that its Solids Complexing and Modified Oxidation System would stabilize the lead contamination and pass all Canadian environmental criteria for leachable contaminants at a cost 52% lower than transportation and disposal.

Solids Management Incorporated, working around the clock, completed the treatment using MP-5050™ (a proprietary reagent compound manufactured by Molecular Products, Inc.) and 20% water in 59 working days.

The value of the project, including all excavation, treatment, testing and compacting of the site was $9.3 million.

Project Summary

Illinois Project

The client was stabilizing (with 35% fly ash and 15% cement kiln dust) and landfilling 250 tons per day (375 tons total) of a dewatered cake produced by his wastewater treatment facility. The cake contained chromium, nickel and assorted quench oils.

Solids Management Incorporated performed bench scale tests and determined that the addition of 2% MP-5050™ (a proprietary reagent compound manufactured by Molecular Products, Inc.) would allow the cake to pass EPA TCLP and Paint Filter criteria, and would reduce the daily volume of material placed in the on-site landfill by 40% at a cost savings of 28% (stabilization reagent only).

Solids Management Incorporated was awarded the contract to supply MP-5050™ for two years.

Project Summary

California Project

A large military/industrial complex slated for closure was discovered to be contaminated with high levels of cadmium, lead, chromium, selenium, zinc, nickel, arsenic and copper. The engineering firm hired to conduct site assessment and feasibility studies for potential remediation contacted 52 companies professing the ability to remediate heavy metal contaminated soils.

Laboratory analysis and the bench scale remediation feasibility studies conducted by SMI revealed the level of contamination to far exceed the levels professed by the engineering firm previously. Never the less, SMI designed a solids washing system that would process 50 cubic yards per hour of solids by removing over 97% of the heavy metal contamination for recycling, and passing California's Soluble Threshold Limit Concentration (STLC), a more stringent criteria than the U.S. Environmental Protection Agency's (USEPA) Toxic Characteristic Leaching Procedure (TCLP).

This project is in the final stages of negotiations and is valued at $2,600,000.00 to $3,000,000.00.

Solids Complexing and Modified Oxidation

Introduction

Solids complexing (stabilization) and oxidation of certain wastes are well proven technical approaches to hazardous waste reduction and mitigation. Solids Management Incorporated ("SMI") has taken the positive aspects of these remedial approaches and combined them into an efficient, cost effective and environmentally safe process for remediating solids (soils or sludges) contaminated with heavy metals, petroleum hydrocarbons and other organic compounds.

SMI's process utilizes a custom-designed 150 ton-per-hour solids processing system (SPS-150T), water, and a proprietary compound (MP-5000™ or MP-5050™) for complexing and oxidizing the contaminant. By using SMI's process, most contaminated solids will surpass U.S. Environmental Protection Agency (USEPA) or other regulatory criteria, and in most cases, allows the solids to remain on the site, saving the customer from the costs and liability associated with off-site disposal options.

The SMI Process

1. Samples from the contaminated site are analyzed and bench treated in an EPA certified laboratory to determine what level of treatment is required to exceed the regulatory criteria for the site.

2. The solid is generally excavated and stockpiled prior to the arrival of SMI's equipment, personnel and reagent on the site. Setup of the system is fast and generally takes 1-2 hours after arrival. Stockpiled solids are

classified prior to being placed into the feed hopper of the SPS-150T to remove large debris and break large pieces of solids into smaller particles.

3. The screened solid is loaded into the feed hopper, beneath which is the feed conveyor, which weighs the solids as they leave the hopper and are deposited onto the main conveyor, which carries the them to the mixer. The speed of the system is set to achieve the optimum mixing time of the three components -- solid, water and reagent.

4. The reagent hopper discharge is mounted directly over the main conveyor. The automatic, variable-speed control on the reagent hopper is set to supply the required percentage of reagent (as predetermined by laboratory analysis) directly onto the solids as they travel along the main conveyor to the mixer.

5. As the solids and reagent are deposited into the mixer, water of a predetermined quantity is added, where the three components are thoroughly mixed to disperse the reagent throughout the mixture. As more materials enter the mixer, the materials already present are displaced and exit the mixer. The displaced solids are deposited onto the ground or into loaders for stockpiling in 25-50 cubic yard piles. After 24 hours (curing and reaction time) each treated stockpile is individually sampled and analyzed by an independent, third-party laboratory for confirmation that the solids meet or exceed the regulatory criteria for each contaminant.

The SMI Advantage

The advantages of using Solids Management Incorporated's process are obvious:

1) Regulatory personnel can monitor the process and collect

samples for compliance testing at any point throughout the process;

2) Reagents (MP-5000™ and MP-5050™) are non-hazardous;

3) Process operates under a blanket of water which controls the heat of oxidation and suppresses any vapors, making air quality compliance criteria easy to achieve;

4) Operating rates of up to 150 tons-per-hour make even the largest projects short in duration; and,

5) SMI's personnel have the experience and training to make your contamination problems manageable.

MP-5000™ and MP-5050™

MP-5000™ and MP-5050™ are proprietary reagent formulations of Molecular Products, Inc. Both reagents are specialty blends of nonhazardous ingredients which have the unique ability to affect both organic and inorganic hazardous contaminants concurrently in solids, sludges and water. This unique ability allows Solids Management Incorporated to offer the client a cost effective, environmentally safe, one-step approach to multiple contaminants on the same site.

MP-5000™

MP-5000™ is specially blended to remediate petroleum hydrocarbons and other organics in solids, sludges and liquids. When water and MP-5000™ are admixed with the contaminated solid or sludge it reacts with the contaminant organic to change the chemical composition of the organic compound through modified oxidation. MP-5000™ and water are generally applied at rates between 0.5 - 4% and 5 - 20% respectively by soil weight and are predicated on the level and nature of the contaminant organic. Although designed and blended especially for the remediation of petroleum hydrocarbons and other organics, MP-5000™ will also remediate heavy metals

in sludges and solids that are present in relatively low concentrations with the petroleum hydrocarbons and other organics in the same way that MP-5050™ does for higher concentrations of heavy metals.

MP-5050™

MP-5050™ is specially blended to remediate heavy metal contaminants in solids, sludges and liquids. When water and MP-5050™ are admixed with the contaminated soil or sludge it reacts with the contaminant metal to change the chemical composition of the metal to a hydroxide and complexing it into a unique non-leaching matrix. The matrix created by MP-5050™ exceeds the abilities of other commonly used stabilization materials which are often used in massive quantities (greater than 15%). MP-5050™ and water are generally applied at rates between 0.5 - 4% and 5 - 20% respectively by soil weight and are predicated on the level and nature of the contaminant organic. Although designed and blended especially for the remediation of heavy metals, MP-5050™ will also remediate petroleum hydrocarbons and other organics in sludges and solids that are present in relatively low concentrations with the heavy metals in the same way that MP-5000™ does for higher concentrations of petroleum hydrocarbons and other organics.

MP-5000™ and MP-5050™ For Contaminated Water

Both MP-5000™ and MP-5050™ are excellent when used as either a filtration media or as an enhancement to a filtration media. Water filtered through either reagent can extract metals to <5.0 ppb and organics to <1.0 ppb.

Examine the table below to get an indication of how effective Solids Management Incorporated's process is.

SOLIDS MANAGEMENT INCORPORATED

CONTAMINANT	PRE-PROCESS[1]	POST-PROCESS[2]
TPH	18,690 ppm	62.4 ppm (8015 Mod)
BTEX	1,840 ppm	<0.001 ppm (8020)
Pb	750 ppm	<1.0 ppm (Cal WET)
Pb	55,125 ppm	3.7 ppm (Cal WET)
CN	2.1 ppm	<0.02 ppm
TPH	608 ppm	2.6 ppm (418.1)
Zn	87 ppm	<0.001 ppm
Cu	360 ppm	<0.001 ppm
TPH	1,576 ppm	6.9 ppm (8015 Mod)
Ba	49.5 ppm	0.44 ppm (Cal WET)
Pb	137 ppm	1.3 ppm (Cal WET)
Naphthalene	122 ppm	<1.0 ppm
As	260 ppm	0.3 ppm
Zn	65,038 ppm	80 ppm
Cr	640 ppm	2.8 ppm
Pb	9,334 ppm	4.7 ppm
Cd	653 ppm	0.4 ppm (Cal WET)
Pb	359 ppm	<0.1 ppm (Cal WET)
Cu	525 ppm	<0.1 ppm (Cal WET)
Ni	223 ppm	<0.1 ppm (Cal WET)
Zn	1,332 ppm	<0.1 ppm (Cal WET)
Se	36 ppm	0.2 ppm (Cal WET)
As	361 ppm	<0.1 ppm (Cal WET)
Cr	6,458 ppm	0.93 ppm
TPH	5,636 ppm	87 ppm (418.1)
Cd	5.84 ppm	<0.1 ppm
Cr	39.22 ppm	<0.1 ppm
Pb	289.6 ppm	1.0 ppm
Se	0.31 ppm	<0.1 ppm
PCB	360 ppm	<0.1 ppm
PCP	265 ppm	<0.1 ppm
PAH	1,184 ppm	<0.1 ppm
TPH	1,656 ppm	1.3 ppm (8015 Mod)

[1] Totals

[2] TCLP for metals unless indicated otherwise

Solids Washing

Introduction

Solids washing to remove contaminants, whether organic or inorganic, has been utilized for many years and is a well proven and accepted technology.

The SMI Process

1. Samples from the contaminated site are analyzed and bench treated in an EPA certified laboratory to determine the chemicals and equipment necessary to affect a level of treatment that will exceed the regulatory criteria for the site.

2. The solid is generally excavated and stockpiled prior to the arrival of SMI's equipment, personnel and materials on the site. Setup of the system generally takes 2-3 days after arrival. Stockpiled solids are classified prior to being placed into the feed hopper of the customized solids washing system to remove large debris and break large pieces of the solid into smaller particles.

3. Classified solids are placed into the feed hopper of the system feed conveyor for continuous addition to the solids washing system.

4. Solids are mixed with water and the selected chemical(s) to form a 20% solids slurry by thorough agitation. Slurry conditions are continuously monitored, and further additions of chemicals are made via a proportional controller/pump to maintain constant conditions.

5. The ideal reaction time/wash time of the system (where solids are aggressively mixed with water and chemicals) is 45-90 minutes, and the ideal operating temperature range of the system is generally above 60°F.

6. Slurry is pumped to the separator where the liquid and solid phases are separated. The solids settle to the bottom of the separator while the liquids flow to the clarifier (discussed below).

7. Settled solids are pumped from the bottom of the separator for dewatering. Solids are deposited onto a liner where they are picked up by the earth moving equipment and moved to the "clean solids stockpile". Effluent from the dewatering flows into the flow-line for the liquids flowing from the separator to the clarifier.

8. Liquids from the separator and dewatering equipment are chemically adjusted and blended with a static mixer in-line prior to their entry into the clarifier. Chemical adjustment is monitored and controlled similarly the process described above.

9. Clarified water is pumped to a storage tank from which it is pumped through filters prior to being re-introduced to the system, while contaminants are collected for recycling/disposal by the client.

MATERIAL SAFETY DATA SHEET

IDENTITY	
MP-5050	NOTE:Blank spaces are not permitted. If any item is not applicable or no information is available the space must be marked to indicate that.

SECTION I - MANUFACTURER'S NAME, ADDRESS AND TELEPHONE	
MOLECULAR PRODUCTS, INC. 17625 EL CAMINO REAL SUITE 310 HOUSTON, TX 77058	Emergency Telephone Number (713) 480-8934 Information Telephone Number (713) 480-8934 Date Prepared October 11, 1990 Date Revised February 21, 1992

SECTION II - HAZARDOUS INGREDIENTS		OTHER LIMITS			
HAZARDOUS COMPONENT (Chemical Identity, CAS #)		OSHA PEL	ACGIH TVL	%	
Silica Oxide	CAS # 14808-60-7	10	0.01	N/A	
Silica Quartz	CAS # 14808-60-7	10	0.01	N/A	
Calcium Oxide	CAS # 1305-78-8	5	2	N/A	
Calcium Silicate	CAS # 1344-95-2	N/A	N/A	N/A	
Aluminum Oxide	CAS # 1344-28-1	Not Estab	10	N/A	
Magnesium Oxide	CAS # 1309-48-4	N/A	N/A	N/A	
Ferric Oxide	CAS # 1309-48-4	N/A	N/A	N/A	
Non-Hazardous Ingredients		N/A	N/A	N/A	

SECTION III - PHYSICAL / CHEMICAL CHARACTERISTICS			
pH	11.7	Specific Gravity (H_2O = 1)	2.95
Boiling Point	N/A	Melting Point	> 2,000°C
Vapor Pressure	N/A	Solubility in H_2O	<0.01%
Evaporation Rate	N/A		
Vapor Density	N/A		
Appearance and Color	Light tan/gray, free-flowing powder: Low to no odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
Flash Point	N/A	Flammable Limits	N/A	LEL	N/A	UEL	N/A
Extinguishing Media	N/A			Special Fire Fighting Procedures	N/A		

Unusual Fire and Explosion Hazards

MP-5050 is Non-flammable. MP-5050 reacts with water when applied in large amounts, generally exceeding 20% by weight, and in such instances is may generate heat. Avoid uncontrolled contact with unknown liquids. Caution is advised if steam is being released. Although unlikely, if reaction is confined and heat is not allowed to dissipate, combustibles could ignite. In this unlikely event be prepared to flood with water.

SECTION V - REACTIVITY DATA			
Stability	Unstable	No	Conditions To Avoid
	Stable	Yes	MP-5050 when applied to liquids in containers may generate heat. Do not seal containers until heat has dissipated.
Hazardous Decomposition or Byproducts	None Known		

I would appreciate your reaction to the processes and particularly any questions you might have.

Again, I enjoyed talking to you and I hope this material might be of some value to you in your efforts to clean up the environment.

Thanks for your consideration and should you or your associates have any questions or comments please call me at (713) 446-0553.

Sincerely,
PR & Associates

J. M. Rademacher, PE, DEE

Encl - Drilex brochure
SMI - Statement of Qualifications

File

April 9, 1992

Mr. Richard Green, Superfund
U.S. EPA Region IV
345 Courtland St.
Atlanta, GA 30365

Dear Dick:

It was great talking to you today and renewing contact. As promised, I am enclosing a brochure for Drilex's horizontal drilling program. It can be applied to environmental control needs particularly where contaminated groundwater needs to be effectively intercepted. Specifically, I believe this system has a real potential for solving the ongoing contamination of the groundwater at Velsicol's Hardeman County landfill site. The suggestion is that a horizontal well intercepting the 70 ~~degree~~ East aquifer on "up-dip" would effectively dry the aquifer under the landfill and the 1200 acres tributary to it. I would suggest, that in an abundance of caution, a second horizontal well "down dip" from the fill area be in place to intercept any casual water which might be tributary to the aquifer. This probably would also drastically reduce the tributary sampling and analytical requirements. In any event this technology has, in my mind, a very real potential as an important remediation tool for use in the superfund and RCRA programs.

I also discussed Solids Management Inc. of Houston, Texas with you and its processes to control heavy metals and organics contaminating soils, sludges and water to pass TCLP. The enclosed brochure, Statement of Qualifications, gives a brief overview of the process, some actual project results and pre and post analytical treatability results for a variety of heavy metals and organics. Focussing on heavy metals control, the process requires very little compound addition, e.g., 0.5% to 5% or so, compared to most existing stabilization processes on the market (normally 10-40% increase in volume) and as a result is very cost effective.

For your information SMI has been asked to make a technical presentation to the Region VI remediation group specifically focussing on lead contaminated soils on April 21.

File

April 8, 1992

Mr. Stuart Purvis
Div. 6621
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 871885-5800

Dear ~~Mr. Purvis~~ Stuart:

Thank you for listening to my explanation of the SMI process as it is applied to your contaminated soils, sludges and ground water remediation program. As promised, I have enclosed a Statement of Qualifications prepared by Reade Aulenbacher, VP Operations - SMI, which should provide you with an overview of SMI's technology.

We would appreciate your reaction to the technology as developed by SMI and would be pleased to answer any and all questions. Please contact either Reade Aulenbacher, VP Operations for SMI, at (713) 821-3913 or David Listiak, President SMI, at (713) 480-8934. I am available at (713) 446-0553.

Thank you for your interest in the SMI processes.

Sincerely,
~~For~~ PR & Associates

JMR

J. M. Rademacher, PE, DEE

Enclosure: SMI brochure

cc: Mr. James Phelan
Mr. David Listiak

FILE

April 8, 1992

Mr. Greg Fife
US EPA, Region VI 6E-ES
1445 Ross
Dallas, Tx 75202

Dear ~~Mr. Fife:~~ Greg

Thank you for listening to my rundown on the SMI process as it might be used to remediate the Dallas lead contaminated soils, both at the residential and industrial sites. I have enclosed a Statement of Qualifications prepared by Reade Aulenbacher, V.P. Operations for SMI, which should provide you with an overview of SMI's technologies to remediate heavy metals contaminated soils and water.

This will also confirm arrangements for SMI's president, David Listiak, Reade Aulenbacher, SMI's V.P. of Operations, and me to meet with you and several of the Region VI Remediation people having specific responsibility for the various lead contamination projects in Dallas and the region. We shall be prepared to make a technical presentation including cost estimates to the group and be available to go into as much detail as is necessary to satisfy your interest.

Should you have any questions please call me at (713) 446-0553.

Thanks again for your interest.

Sincerely,
~~For PR&A~~ PR & Associates

J. M. Rademacher PE, DEE

cc: D. Listiak
R. Aulenbacher

File

April 8, 1992

Walter

Dr. ~~Welton~~ W. Kovalik, Jr.
USEPA OS110-W
401 M Street
Washington, DC 20460

Dear Dr. Kovalik:

It was good renewing contact with you yesterday. Thank you for your advice and suggestions to help my client be recognized as meeting BDAT for stabilization and BDAT for control of organics, including VOC's, PAH's and possibly long chain organics such as PCB's and PCP's.

As promised, I am enclosing a Statement of Qualifications including project summaries prepared by Mr. Reade Aulenbacher, VP of Technical Operations for SMI, which should provide you with an overview of SMI's technologies to remediate contaminated soils, sludges and water.

Should you have any questions or comments on the enclosed material please call me at (713) 446-0553. Thanks again for your consideration.

Sincerely,
~~For~~ PR&A — Spellcut - PR & Associates

J. M. Rademacher, PE, DEE

cc: D. Listiak

SECTION V - REACTIVITY DATA (continued)						
Incompatibility (Materials to Avoid)	None Known					
Hazardous Polymerization	**May Occur**	No	**Conditions To Avoid**	None Known		
	Won't Occur	Yes				

SECTION VI - HEALTH HAZARD DATA						
Route(s) of Entry	**Inhalation?**	Yes	**Skin?**	Yes	**Ingestion?**	Yes
Health Hazards (Acute or Chronic)						
1. Contact with skin or eyes may result in irritation and/or alkali burns. Solubility allows penetration to continue for several days. 2. Inhalation may produce irritation of nasal septum. Excessive exposure by inhalation of airborne particles over an extended period of time may result in the development of pulmonary diseases including coniousis and silicosis.						
Carcinogenity:	**NTP?**	No	**IARC Monographs**	No	**OSHA Regulated?**	No
Signs and Symptoms of Exposure	See "Health Hazards (Acute or Chronic)" above					
Medical Conditions Generally Aggravated	Disorders of the eyes, skin, or respiratory tract					
First Aid And Emergency Procedures	1. INHALATION: Remove from exposure. If breathing give oxygen; if not, give artificial respiration. Consult a physician. 2. EYE CONTACT: Immediately flush eyes with large quantities of cool running water for at least 15 minutes while lifting upper and lower eyelids. Consult a physician. 3. INGESTION: Dilute by giving water. Do not allow vomiting to occur. Keep head below hips to avoid aspiration. Get immediate medical attention.					

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE	
Steps to be Taken in Case Material is Spilled/Released	Personal protective equipment should be used to prevent exposure and protect against alkali burns or irritation.
Waste Disposal	This material as supplied does not meet the criteria for hazardous waste as defined by the EPA under the authority of RCRA. Dispose of in accordance with all regulations.
Precautions to be Taken in Handling and Storage	Material should be stored in a dry area in a manner to prevent contact with strong acids and large quantities of water.
Other Precautions	Keep away from children.

SECTION VIII - CONTROL MEASURES					
Respiratory Protection (Specify Type)	NIOSH / MSHA approved protection against silica and nuisance dusts				
Ventilation	**Local Exhaust**	Yes	**Special**	Not Determined	
	Mechanical (General)	Yes	**Other**	Not Determined	
Protective Gloves	Rubber, PVC, Neoprene		**Eye Protection**	Goggles	
Other Protective Clothing or Equipment	High top rubber boots, barrier cream, arm sleeves.		**Work/Hygienic Practices**	Observe good personal hygiene	